corrected for solar rotation and for the Earth's annual and diurnal motions:

International Units	5302.79
Rowland Units	5302.97

This result, while in good agreement with that for the green line west of the Sun, is of comparatively small weight and should not be used.

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BRIGHT-LINE SPECTRUM OF THE CORONA

The general spectrum of the corona in the region 3600-5300A, shown on the spectrogram obtained with one-prism dispersion by the Lick Observatory Expedition on June 8, 1918, has been described in an earlier number of the PUBLICATIONS.[1] In the present note we have collected the results of our study of the bright-line spectrum of the corona based upon this spectrogram. These are described in the first three columns of the accompanying table, which give respectively, the observed wave-length from the mean of the measures by Campbell and Moore, the relative intensities of the lines, and the length of the lines in minutes of arc. A number of prominence or chromospheric lines are recorded on the photograph, twenty-one of the hydrogen series alone ($H\beta$ to $H\chi$) being measurable. These lines served as convenient reference points in determining the wave-lengths of the coronal lines. The relative intensities in the second column are subject to some uncertainty since those lines which lie upon a strong background of continuous spectrum would undoubtedly seem very much less intense if they were free from the background.

In the fourth column of the table are given the probable wave-lengths of the bright lines recorded on spectrograms of the corona by different observers, beginning with the eclipse of 1893. Those which appear to be undoubtedly coronal in origin are printed in bold type. A few lines observed on only one occasion by one observer, in some cases described as doubtful by the observers themselves, have been omitted, but some lines of this character have been left in the list, as they appear to be represented by Nicholson's formulae[2] for electronic radiations of "protofluorine" and "coro-

[1] *Publ. A. S. P.*, **30**, 232, 1918.
[2] *M. N. R. A. S.*, **72**, 739, 1912, and **76**, 417, 1916.

nium." In all essentials we think the list is complete. The last column of the table exhibits Nicholson's identification of the lines with protofluorine and coronium, for which the symbols P and C are used, respectively. Only a general statement of the relative

TABLE—CORONAL BRIGHT LINES

Campbell and Moore (1918)			All Observers		Nicholson's
Mean λ	Int.	Length minutes of arc	Probable λ	Int.	formulae
			3288 ?	faint	P
			28.2	fairly strong	P
			57	faint	
			88	very strong	P
			3455	strong	P
			61	faint	
			3505 ?	faint	P
			34	faint	C
3601.3	5	4½	**3601.3**	pretty strong	P
			26	faint	P
41.4	2	1.3	41.4	rather faint	
43.1	2	1.3	**43.0**	rather faint	C
48.0	2	1.3	48	rather faint	
* 51.8?	1		51 ?	faint	
3801.4	1	2±	**3801.0**	rather faint	P
			65 ?	faint	P
			91	faint	P
3986.9	1	2.5	**3986.9**	fairly strong	P
4085.9	1	4±	**4086.0**	fairly strong	P
			4130	faint	
4231.4	3	6	**4231.4**	fairly strong	P
4240.8	1	3±	40.8	faint	
44.8	1	3±	44.8	faint	
			4311	faint	P
			4359	rather faint	C
*4397.4?	1		98 ?	very faint	P
4533.4	2	2±	4533.4	faint	
* 67.4?	1		**67**	rather faint	C
			86	rather faint	P
			4722 ?	faint	P
			25 ?	faint	P
*4778.6?	1		79	faint	
			5073	faint	P
			5118	faint	P
5303.0	10	4½	**5303.1**	very strong	C
			5536	faint	P
			6374.2	strong	C

*Measured only by Moore.

intensities (column five) of the lines is practicable, since the observations were made with spectrographs which differ widely in their transmission for different parts of the spectrum. Again, there is a strong suspicion that the bright-line spectrum of the corona is variable, tho experience in dealing with spectrograms taken under a variety of conditions and with a variety of instruments teaches one to be guarded in making such statements. In this connection, a few striking differences should be noted. The line at 3601A, unmistakably coronal and strong in 1908 and 1918, was not observed in earlier years by Hills and Newall, Dyson, etc., tho their quartz spectrographs were certainly well adapted to recording it if it actually existed at those eclipses. The line at 4359A was observed in the years 1898-1905 in good strength but was invisible in 1908 and 1918. The line 4087A was strong on Lewis's spectrogram of 1908, but weak on all other spectrograms. The questions of variability and the relations of relative intensities to the sunspot period are interesting ones for future decision.

On our spectrogram the lines 3601 and 5303A seem to have the same form: strong at the Sun's edge, and gradually decreasing in strength toward their outer ends. Jewell reported for the 1901 eclipse that the coronal rings 3381 and 5303A, as photographed with a slitless spectrograph, had identical forms; and that the rings at 3456, 3643, 3801, and 3987A had a common but different form. We find that the line 4231A is long and of slowly diminishing intensity as it proceeds outward from the Sun's edge, thus indicating a stratum source quite different from the 3381, 3601 and 5303A strata. The distribution of the 4231A materials around the Sun seems to be more uniform than that of the 5303A materials.

Three bright lines whose positions we have determined as 3648.0, 4244.8, and 4533.4A, and which we suspect of being coronal lines, do not appear to have been observed on previous spectrograms.

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EIGHT STARS WITH VARIABLE RADIAL VELOCITIES

The following stars have been found to have variable radial velocities, from recent measures of spectrograms secured with the three-prism Mills' spectrograph of the Lick Observatory. The spectra of both components are visible in several cases.

64 *Piscium* ($\alpha = 0^h\ 43^m.7$; $\delta = +16°24'$; Mag. = 5.2; Class F)